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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/731,010	12/07/2000	Takahiro Aoki	1075.1135/JDH	8774

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
BHATNAGAR, ANAND P	
ART UNIT	**PAPER NUMBER**
2623	

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/731,010	Applicant(s) AOKI ET AL.	
	Examiner Anand Bhatnagar	Art Unit 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,19 and 26* is/are rejected.

7)☒ Claim(s) *3,6-18,25 27, and 28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, 5, 19, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. (U.S. patent 6,298,143 B1).

Regarding claim 1: Kikuchi et al. discloses a method of detecting a moving object, comprising:

(a) a first dividing step of dividing an input image into a plurality of first unit blocks (col. 3 lines 35-42, where two consecutive time series images are both segmented into regions. The current image is read as the input image and the previous image is read as the background image.);

(b) a second dividing step of dividing a given background image into a plurality of second unit blocks (col. 3 lines 35-42, where two consecutive time series images are both segmented into regions. The current image is read as the input image and the previous image is read as the background image.);

(c) a moving block extracting step of comparing said first unit blocks with said second unit blocks for every unit block and extracting a number of said first unit blocks, which are different in brightness distribution pattern from the corresponding second unit blocks, as moving blocks (col. 3 lines 43-55, where

the brightness pattern is compared in each segmented block between the two frames respectively and the ones different in the brightness distribution are extracted);

(d) a moving area setting step of setting a moving area that surrounds said moving blocks extracted in said moving block extracting step (col. 3 lines 56-58, where the object is detected and extracted by the difference of brightness calculated for the different blocks between the two images. The detection and extraction of the object is read as setting a moving area since the object is the region in the image which is moving.); and

As for the following limitation of: a brightness comparing step of comparing a distribution of brightness values of the input image with is a distribution of brightness values of the background image in the moving area, which is set by said moving area setting step, to discriminate whether or not a moving object appears in the input image.

Kikuchi et al. discloses a system to detect motion in a plurality of images from the background region by segmenting the images into blocks and comparing brightness factors (such as brightness average, brightness variance, brightness change rate, etc.) between the two images (col. 6 lines 27-32 and 38-46). Kikuchi et al. further discloses to comparing segments wherein the feature values that are substantially identical are compared by a second feature value and the motion detected from this second feature value (col. 3 lines 62-67 and col. 4 lines 1-9). Kikuchi et al. does not disclose to use the distribution of the

brightness value of the background image to locate a moving object. It would have been obvious to one skilled in the art for one skilled in the art to modify the system of Kikuchi et al. to include the distribution of brightness as a feature value in order to obtain the groups/clusters of pixels in the regions of the images to show what regions of the images may contain motion.

Regarding claim 2: A moving object detecting method wherein said brightness comparing step includes:

an appearance frequency measuring step of measuring a frequency of occurrence of pixels having a predetermined brightness value (col. 8 lines 55-58); and

a trimming step of trimming the pixels, whose appearance frequency is lower than the predetermined a value, from the pixels of the input image in the whole range of various brightness values (col. 8 lines 55-58, wherein brightness vectors which have a minor error are eliminated. This is read as pixels that are below a certain level or just a few of them are detected and eliminated.).

Regarding claim 4: A moving object detecting method wherein in said moving area setting step, said moving area surrounding the moving blocks is rectangular in shape (figs. 2A, 2B, 3A, 3B, 6A and 6B, wherein the moving and nonmoving regions are rectangular).

Regarding claim 5: It is rejected for the same reasons as claim 1 and for the following limitation of: a monitoring region clipping step of clipping a monitoring region, which is to be monitored, from an input image;

Kikuchi et al. discloses to detect the motion of an object between two images by analyzing the brightness change in regions of the images. Kikuchi et al. does not teach to clip the image prior to dividing up the images. It would have been obvious to one skilled in the art to clip certain portions/sections of images out of the images before analyzing them (such as a in images of a room wherein there may be a sectioned off area, by a walls, objects, etc., where it is not possible for any motion to take place in) so that less computation will need to be performed and this will speed up the process of detecting motion.

Regarding claim 19: It is rejected for the same reasons as claims 1 and 5 combined.

Regarding claim 26: An apparatus for detecting a moving object in an input image, comprising: It is rejected for the same reason as claim 1 above and for the following limitations of: an input image retaining section for retaining the input image and a judging section. It is obvious to one skilled in the art that in order to compare two or more images as well as respective segments between the images then they need to be stored in a storage/memory so that the comparison can take place. As for the judging section, different images and or sections of the images are compared for the brightness change to detect the presence of motion, i.e. this is read as judging an image for motion.

Allowable Subject Matter

2. Claims 3, 6-18, 20-25, 27, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Courtney (U.S. patent 5,969,755) for motion detection using variance.

Tsuchikawa et al. (U.S. patent 5,748,775) for motion extracting using variance.

Contact Information

4. Any inquiry into this communication should be directed to Anand Bhatnagar whose telephone number is 703-306-5914, whose supervisor is Amelia Au whose number is 703-308-6604, group receptionist is 703-305-4700, and group fax is 703-872-9306.

AB

Anand Bhatnagar

Art Unit 2623

February 23, 2004

SAMIR AHMED
PRIMARY EXAMINER